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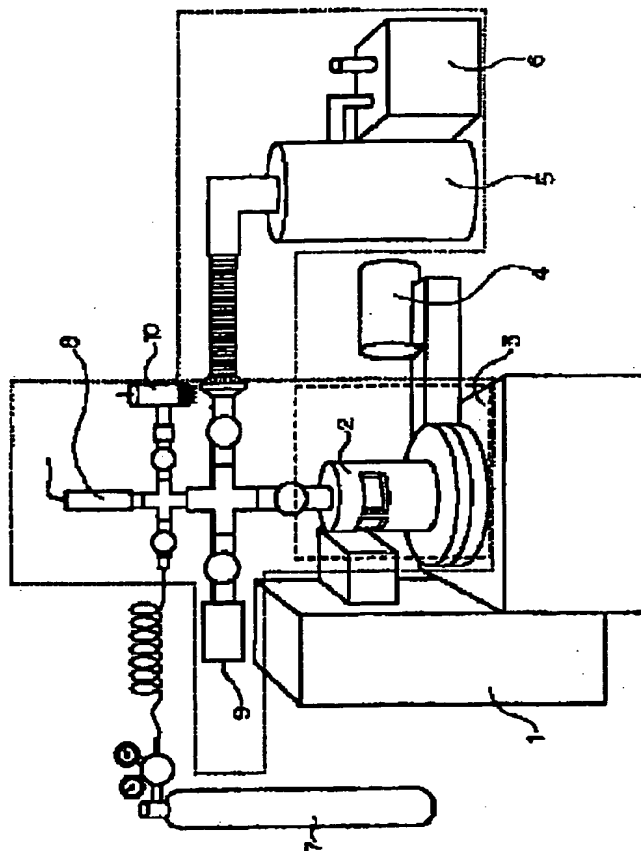
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TITLE : X-RAY DIFFRACTION DEVICE AND
 MEASURING METHOD OF SAMPLE
 USING THIS DEVICE



ABSTRACT : **PROBLEM TO BE SOLVED:** To simultaneously measure the reaction quantity of a sample with a gas and the diffraction result such as crystal structure of the sample by connecting an evacuating means, a gas introducing means, and a gas quantity measuring means to a chamber part.

SOLUTION: This device comprises a diffusion pump 5, a rotary pump 6 and the like as evacuating means, a gas cylinder 7 or the like filled with an inert gas as gas introducing means, and a pressure gauge 8, a precise pressure gauge 9, a high vacuum gauge 10 and the like as gas quantity measuring means. A heater consists of a Ta thin film heater, and it is provided on the X-ray emitting-side back surface of a sample. The pressure within a chamber 2 and the temperature are set to about 0-10 atm. and about 20-500°C by these means, and the gas quantity according to the pressure within the chamber 2 is measured. In the case of a hydrogen storage alloy sample, for example, the hydrogen gas quantity or hydrogen storage quantity is measured from the equilibrated hydrogen pressure, and the lattice constant and crystal structure of the hydrogen storage alloy are measured by X-ray diffraction. This is intermittently performed with the lapse of time, whereby the hydrogen storage quantity, the lattice constant change, and the form change of crystal can be simultaneously measured.

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